

## REMARKS

Reconsideration and allowance of the present application is respectfully requested.

Initially, Applicants wish to thank the Examiner for indicating that claims 6, 7, 9, 10, 14 and 19 are objected to, but that they would be allowable if they are amended to be placed in independent form. By the current amendment, Applicants amend claims 6, 7, 9 and 19 to place them into independent form, including substantially all the limitations of the base claim and any intervening claims. In this regard, with respect to objected claim 6, Applicants believe that it is not necessary to include the subject matter of intervening claim 4 in currently amended claim 6, and thus, has not done so. Further, Applicants note that objected claim 10 depends from currently amended independent claim 9, and thus, claim 10 does not have to be placed into independent form. In addition, Applicants have elected not to place objected claim 14 into independent form at the present time, electing at this time to have it depend from currently amended claim 1, which, for reasons to be discussed below, is believed to be allowable over the art of record. In view of the current amendment, Applicants submit that claims 6, 7, 9, 10, 14 and 19 are allowable over the art of record, and respectfully request such an indication from the Examiner.

Applicants also confirm their U.S. counsel's conversation with the Examiner on April 18, 2003, in which Applicants requested a copy of the Office Action Summary sheet that was inadvertently omitted from the mailed Action, and in which Applicants requested the status of claims 4 and 5. In this regard, the Examiner indicated that page 3

of the Office Action should have indicated that claim 1-5, 8, 11 and 13 (and not claims 1-3, 8, 11 and 13) are rejected under 35 U.S.C. §103(a). Applicants thank the Examiner for forwarding the Office Action Summary sheet and corrected page 3 of the Office Action to Applicants.

In the current amendment, Applicants amend page 6 of the specification to delete reference to a non-English character, and amend page 27 of the specification to delete the incorporation by reference of the priority document. In view of these amendments, Applicants submit that the ground for the objections to the specification no longer exists, and respectfully request withdrawal of the specification objections.

The Examiner objects to the drawings on the ground that the spacing feature specified in claim 6 is not shown in the drawings. Applicants respectfully traverse this objection, submitting that a careful examination of Fig. 4 (herein re-labeled as Fig. 4A) does in fact disclose the claimed space between the high-frequency terminals and the outer edge of the multi-layer assembly. However, in order to more clearly illustrate this feature, Applicants amend Fig. 4 to be labeled as Fig. 4A, and add an additional drawings, labeled as Fig. 4B, that presents an enlarged view of this portion of the multi-layer assembly. Further, Applicants amend the appropriate sections of the specification to change all reference to Fig. 4 therein to Fig. 4A, and to add appropriate text for the addition of Fig. 4A. No prohibited new matter has been added. In view of the current amendment, Applicants submit that the ground for this particular objection no longer

exists.

The Examiner further objects to the drawings as failing to disclose the solder ball feature specified in claim 12. Applicants have elected to cancel, without prejudice, claim 12, and thus, submit that the ground for this objection to the drawings no longer exists.

The Examiner additionally objects to the drawings as failing to disclose the land size feature specified in claim 14. Applicants respectfully traverse this drawing objection, submitting that the size relationship between the lands and the high frequency terminals is apparent in Figs. 1, Figs. 4 (re-labeled herein as Fig. 4A) and 5. Accordingly, Applicants submit that it is not necessary to amend the drawings with respect to this feature, and respectfully request withdrawal of this objection to the drawing.

Applicants respectfully traverse the Examiner's 35 U.S.C. §103(a) rejections of the claims. According to a feature of the present invention, as described at, for example, page 6 of Applicant's specification, circuit electrodes are provided (patterned) inside the multi-layer assembly that serve as the switching circuit and filtering circuit. According to the instant invention, the high-frequency switching module comprises a switching circuit and a filtering circuit, in which a large number of circuit electrodes are arranged at a high density inside the multi-layer assembly.

In the prior art, high-frequency terminals designed as input and output ports for the high-frequency signals were provided on lateral sides of a multi-layer assembly, resulting in an undesired situation in which the terminals act as an antenna, resulting in interference

with neighboring components, thus deteriorating the electrical characteristics of the switching module.

The present invention addresses this situation by having circuit electrodes provided inside the multi-layer assembly that serve as the switching circuit and filtering circuit, and forming the lateral sides of the multi-layer assembly as no-electrode provided faces, on which the high-frequency terminals are excluded. Thus, neighboring components are less likely to be adversely affected by external effects. At least this feature is not disclosed (singularly or in combination), by the art applied by the Examiner.

Applicants submit that U.S. Patent 5,513,382 to AGAHI-KESHEH fails to disclose Applicants' high-frequency terminal arrangement, nor does the document suggest that the lateral sides of the multi-layer assembly be formed as no-electrode provided faces to exclude the high-frequency terminals thereon, as is taught by Applicants' invention.

Applicants further submit that U.S. Patent 5,834,994 to SHAPIRO discloses that a low pass filter having a simple circuit structure, in which a via-hole is provided between adjacent circuit electrodes inside the multi-layer assembly to suppress interference. Applicants submit that this document is not concerned with (or directed to) solving the problem of high-frequency terminals acting as an antenna and adversely affecting neighboring components, as is taught by Applicants' invention. Thus, Applicants submit that this document does not disclose (or suggest) the prevention of high-frequency interference from external effects in a high-frequency switching module, by forming the

lateral sides of the multi-layer assembly as no-electrode provided faces having no high-frequency terminals thereon.

Applicants further submit that even if one attempted to combine the teachings of these documents in the combination suggested by the Examiner, one would fail to arrive at Applicants' invention, because such a combination would fail to disclose or suggest a high-frequency switching module in which circuit electrodes are provided inside the multi-layer assembly that serve as the switching circuit and filtering circuit, and in which the lateral sides of the multi-layer assembly are formed as no-electrode provided faces on which the high-frequency terminals are excluded.

Further, Applicants submit that the above discussed feature is not disclosed/suggested by the other prior art documents of records.

By the current amendment, Applicants amend independent claims 1, 15 and 16 to clarify that the switching circuit and the filtering circuit are formed with circuit electrodes in the layers of the multi-layer assembly, while the lateral sides of the multi-layer assembly are not provided with any high-frequency terminals. In view of the above, Applicants submit that the grounds for the 35 U.S.C. §103(a) rejections of the claims no longer exist.

Accordingly, the Examiner is respectfully requested to indicate the allowability of the pending claims, and to pass the application to issue.

Furthermore, Applicants submit that the dependent claims are allowable for reasons additional to that discussed above with respect to claims 1, 15 and 16. For

example, claim 4 additionally recites the size relationship of the electrodes, which is discussed at, for example, pages 18 - 20 of Applicants' specification. Specifically, the high-frequency terminals 2 of the high-frequency switching module are provided on the bottom surface 102 of the multi-layer assembly 1 to increase the shielding effect. In order to ensure the strength of the bonding between the multi-layer assembly 1 and the circuit board, the present invention teaches that the high-frequency terminals 2 are increased in the connection area (e.g., the electrode width of each high-frequency terminal 2 is made increased at the outer edge of the multi-layer assembly 1). Dependent claim 5 specifies the shape of the high-frequency terminals, which serves to increase the mounting strength of the terminals. Applicants submit that these arrangements are neither disclosed or suggested by the applied art of record. Accordingly, Applicants submit that additional grounds exist for concluding the allowability of the dependent claims.

#### SUMMARY AND CONCLUSION

In view of the fact that none of the art of record, whether considered alone or in combination, discloses or suggests the present invention as now defined by the pending claims, and in further view of the above amendments and remarks, reconsideration of the Examiner's action and allowance of the present application are respectfully requested and are believed to be appropriate.

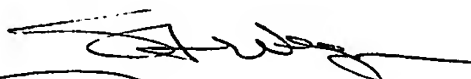
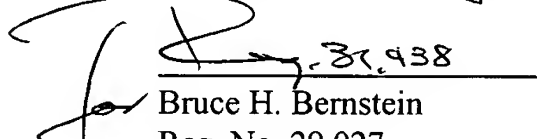
Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be

considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Commissioner determine that an extension of time is required in order to render this response timely and/or complete, a formal request for an extension of time, under 37 C.F.R. §1.136(a), is herewith made in an amount equal to the time period required to render this response timely and/or complete. The Commissioner is authorized to charge any required extension of time fee under 37 C.F.R. §1.17 to Deposit Account No. 19-0089.

If there should be any questions concerning this application, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,  
Yasushi NAGATA et al.

  
  
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Annotated

Fig. 4A

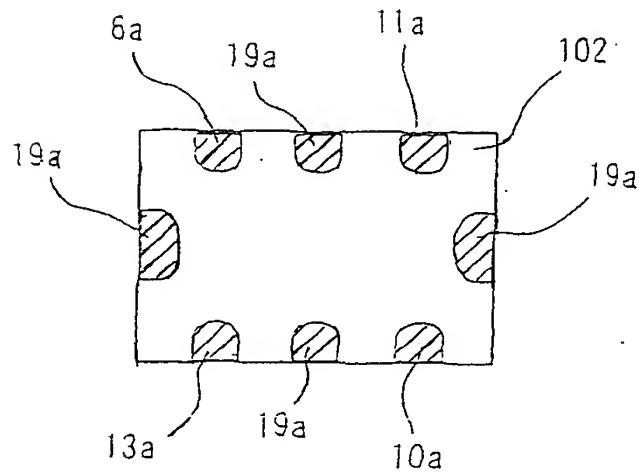


Fig. 4B

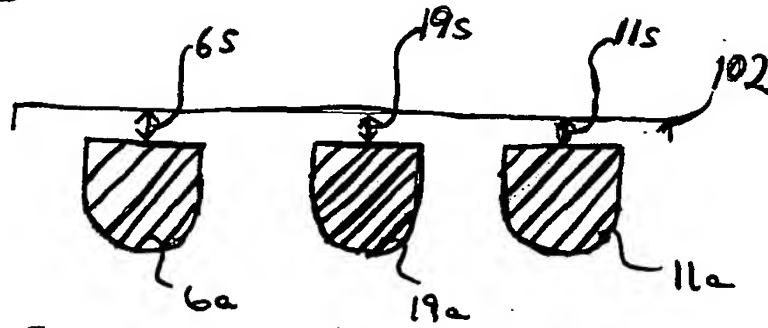


Fig. 5.

